

REMARKS

Upon entry of the Amendment, Claims 1-7, 10-16 and 18 are pending.

Claims 1 and 18 are amended (1) by incorporating the subject matter of Claims 8 and 17, respectively, (2) by changing the word “treating” to “kneading”, and (3) by reciting “for a kneading time of 5-40 minutes” which is supported in the specification, for example, at page 10, lines 24-26. Claims 8 and 17 are thereby canceled. No new matter is added.

Entry of the Amendment is respectfully requested along with reconsideration and review of the claims on the merits.

Claim Rejections - 35 USC § 103

A. Claims 1-7 are rejected under 35 U.S.C. 103(a) as assertedly being unpatentable over Ogawa (JP 11-80690) in view of Southwick et al. (US 5,776,998) for the reasons given in the Office Action.

Ogawa discloses a pressure sensitive adhesive (PSA) composition and an adhesive sheet comprising the pressure sensitive adhesive composition wherein the PSA comprises 100 parts by weight of an elastomer such as natural rubber, 50-150 parts by weight of a tackifier and 0.1 to 10 parts by weight of a polyisocyanate compound such as 4,4'-diphenylmethane diisocyanate.

The Examiner recognizes that Ogawa does not specifically state that the process of making their pressure sensitive adhesive does not use a solvent.

However, the Examiner asserts that Southwick et al. teaches processes for making adhesives by shearing a mixture of a photoinitiator and a polymer formulation (Column 1, lines 39-49).

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B. Claims 1-8 are rejected under 35 U.S.C. 103(a) as assertedly being unpatentable over Sashihara et al. (US 6,251,517 1311) in view of Southwick et al. (US 5,776,998) for the reasons given in the Office Action.

The Examiner asserts that Sashihara discloses a pressure sensitive adhesive (PSA) composition comprising 100 parts by weight of natural rubber, 50 parts by weight of terpene-phenolic resin and 40 parts by weight of an isocyanate hardening agent having three functional groups (See Examples 1 and 2). The PSA composition may be prepared as a coating liquid and applied to a support sheet and dried to produce a PSA sheet (Column 7, lines 36-45).

The Examiner recognizes that Sashihara does not specifically state that the process of making their pressure sensitive adhesive does not use a solvent, and thereby combines Sashihara with Southwick to assert the obviousness of a non-solvent process.

C. Claims 1-7 are rejected under 35 U.S.C. 103(a) as assertedly being unpatentable over Creegan et al. (US 3,914,484) in view of Southwick et al. (US 5,776,998) for the reasons given in the Office Action.

The Examiner asserts that Creegan discloses PSA composition and labels employing such a composition (Column 1, lines 5-10). The PSA comprises natural rubber and a tacky resin and a polyisocyanate, preferably a diisocyanate (Column 2, lines 10-20).

The Examiner recognizes that Creegan does not specifically state that the process of making their pressure sensitive adhesive does not use a solvent, and thereby combines Creegan with Southwick to assert the obviousness of a non-solvent process.

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D. Claims 10-18 are rejected under 35 U.S.C. 103(a) as assertedly being unpatentable over Ogawa (JP 11-80690) in view of Southwick et al. (US 5,776,998) and Applicants' own admission for the reasons given in the Office Action.

Claims 10-18 are rejected under 35 U.S.C. 103(a) as assertedly being unpatentable over Sashihara et al. (US 6,251,517 131) in view of Southwick et al. (US 5,776,998) and Applicants' own admission for the reasons given in the Office Action.

Claims 10-18 are rejected under 35 U.S.C. 103(a) as assertedly being unpatentable over Creegan et al. (US 3,9147,484) in view of Southwick et al. (US 5,776,998) and Applicants' own admission for the reasons given in the Office Action.

For each of the rejections presented above, Applicants respond as follows.

Applicants traverse the rejections in view of the cited references on the basis that the combination of the cited references does not arrive the present invention. Applicants traverse what the Examiner considers to be a *prima facie* obviousness rejection. In other words, Applicants traverse each combination including Southwick because the product of the combination would still not achieve the present invention as currently claimed. Applicants submit that each combination with Southwick results in a mixture different from Applicants' claimed invention. For example, using a shearing mixer or a sonicator of Southwick would not achieve Applicants' solid type PSA.

Southwick discloses that use of a non-aqueous solvent is not desirable. To solve this disadvantage, Southwick discloses a method of mixing in a high shear mixer at a shear rate of at

least $30,000\text{ S}^{-1}$, and a method of mixing in a sonicator at a power density of at least 4 watts per milliliter. In Southwick, a mixture contains a specific polymer and a tackifying resin, and the mixture is mixed in the absence of a non-aqueous solvent. The adhesive composition after mixing is applied and then irradiated with ultraviolet rays to induce crosslinking reaction, thereby functioning as an adhesive. Thus, in Southwick, crosslinking reaction does not occur by merely mixing a polymer and a photoinitiator. For this reason, there is no problem even if considerable shear rate or heat is applied to a mixture.

On the other hand, the characteristic of the present invention is to mix an isocyanate crosslinking agent as a crosslinking agent with a rubbery polymer. Therefore, in the present invention, since the crosslinking reaction proceeds from the time of kneading, the kneading time and kneading temperature must appropriately be controlled while observing its torque, in kneading. Such a determination of kneading temperature of about 80 to 160°C and kneading time of 5-40 minutes is not disclosed or suggested by Southwick. Further, the mixing method disclosed in Southwick is only a mixing by ultrasonic wave or a method at a high shear rate. The claimed invention now changes "treating" to "kneading" as mentioned above. As a result, the mixing according to the claimed invention is not a mixing by an ultrasonic wave or a high shear mixing at a high shear rate. A shear rate of a pressure kneading generally used is about 100-2,000 S^{-1} . From this, the mixer disclosed in Southwick has a shear rate one or two orders higher than the conventional shear rate.

For the foregoing reasons, Applicants respectfully submit that the present invention is not achieved by the combination of Ogawa, Sashihara, and/or Creegan with Southwick.

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In addition, Applicants submit that Claims 10-18 will stand with Claims 1-8 as previously discussed.

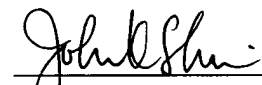
Accordingly, Applicants respectfully request reconsideration of the claims and withdrawal of the rejections under 35 U.S.C. § 103(a).

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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